



Approach to patient with Chronic Diarrhea

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- **To identify the difference bet. Acute and chronic diarrhea.**
- **To know the different pathophysiological mechanisms of chronic diarrhea.**
- **To know the different causes.**
- **To be able to evaluate patient with chronic diarrhea.**



In most cases, the physician's working definition of diarrhea is increased stool frequency (more than two or three bowel movements per day) or liquidity of feces.

Diarrhea can range in severity from an acute self-limited episode to a severe, life-threatening illness. To properly evaluate the complaint, the physician must determine the patients normal bowel pattern and the nature of the current symptoms.

1-Acute diarrhea

Diarrhea acute in onset and persisting for less than 3 weeks is most commonly caused by infectious agents, bacterial toxins (either preformed or produced in the gut), or drugs.

A-Non-inflammatory diarrhea

Watery, nonbloody diarrhea associated with periumbilical cramps, bloating, nausea, or vomiting suggests a small bowel source caused by either a toxin-producing bacterium (enterotoxigenic E coli [ETEC], Staphylococcus aureus, Bacillus cereus. Because tissue invasion does not occur, fecal leukocytes are not present.

B-Inflammatory diarrhea

Acute Diarrhea

The presence of fever and bloody diarrhea (dysentery) indicates colonic tissue damage caused by invasive microorganisms (shigellosis, salmonellosis, campylobacter or yersinia infection, amebiasis) or a toxin (C difficile, E coli O 157: H7). Because these organisms involve predominantly the colon, the diarrhea is small in volume (< 1 L/d) and associated with left lower quadrant cramps, urgency, ad tenesmus. Fecal leukocytes usually are present, cytomegalovirus can cause intestinal ulceration with watery or bloody diarrhea.

Causes of acute infectious diarrhea

Noninflammatory diarrhea	Inflammatory diarrhea
Viral Norwalk virus Rotavirus	Viral Cytomegalovirus
Protozoal Giardia lamblia Cryptosporidium	Protozoal Entamoeba histolytica
Bacterial 1-Preformed enterotoxin production Staphylococcus aureus Bacillus cereus Clostridium perfringens 2-Enterotoxin production Enterotoxigenic E coli (ETEC) Vibrio cholerae	Bacterial 1-Cytotoxin production Enterohemorrhagic Ecoli O 157:H5 (EHEC) Vibrio parahaemolyticus Clostridium difficile 2-Mucosal invasion Shigella Campylobacter jejuni Salmonella Enteroinvasive E coli (EIEC)

Evaluation

- In over 90% of patients with acute diarrhea, the illness is mild and self-limited, responding within 5 days to simple rehydration therapy or antidiarrheal agents; diagnostic investigation is unnecessary.
- If diarrhea worsens or persists for more than 7-10 days, stool should be sent for fecal leukocyte determination, ovum and parasite evaluation, and bacterial culture.

Chronic diarrhea

Is a diarrhea lasting more than 3 weeks) is rarely caused by infectious disease.

Chronic diarrhea is a common symptom with many potential underlying causes..

Chronic diarrhea

Etiology

The causes of chronic diarrhea may be grouped into six major pathophysiologic categories.

Causes of chronic diarrhea

Chronic Diarrhea

Osmotic diarrhea

CLUES: Stool volume decreases with fasting; increased stool osmotic gap

Secretory diarrhea

CLUES: Large volume (> 1 L/d); little change with fasting; normal stool osmotic gap

Inflammatory conditions

CLUES: Fever, hematochezia, abdominal pain

Malabsorption syndromes

CLUES: Weight loss, abnormal laboratory values; fecal fat > 10 g/24h

Motility disorders

CLUES: Systemic disease or prior abdominal surgery

Chronic infections

1. Parasites: *Giardia lamblia*, *Entamoeba histolytica*

2. AIDS related:

Viral: Cytomegalovirus, HIV infection

Bacterial: *Clostridium difficile*

A-Osmotic diarrheas

➤ As stool leaves the colon, fecal osmolality is equal to the serum osmolality, ie, approximately 290 mosmol/kg. The stool osmolality may be estimated by multiplying the stool

$(\text{Na}^+ + \text{K}^+) \times 2$.

The osmotic gap is the difference between the measured osmolality of serum and the estimated stool osmolality and is normally less than 50 mosmol/kg. An increased osmotic gap (> 125 mosmol/kg) implies that the diarrhea is caused by ingestion or malabsorption of an osmotically active substance.

A-Osmotic diarrheas

- **The most common causes are disaccharidase deficiency (lactase deficiency), laxative abuse, and malabsorption. Osmotic diarrheas resolve during fasting. Those caused by malabsorbed carbohydrates are characterized by abdominal distention, bloating, and flatulence due to increased colonic gas production.**
- **Disaccharidase deficiencies are common and should be considered in all patients with chronic diarrhea. It may also be acquired after an episode of viral gastroenteritis, medical illness, gastrointestinal surgery.**

B-Secretory conditions

- Increased intestinal secretion or decreased absorption results in a high-volume watery diarrhea with a normal osmotic gap. There is little change in stool output during the fasting state. Causes include endocrine tumors (Stimulating intestinal or pancreatic secretion), bile salt malabsorption , and laxative abuse.

C-Inflammatory conditions

- Diarrhea is present in most patients with inflammatory bowel disease. A variety of other symptoms may be present, including abdominal pain, fever, weight loss, and hematochezia.

D-Malabsorptive conditions

- The major causes are small mucosal intestinal diseases, intestinal resections, lymphatic obstruction (celiac disease), small intestinal bacterial overgrowth, and pancreatic insufficiency. Its characteristics are weight loss, osmotic diarrhea, and nutritional deficiencies. Significant diarrhea in the absence of weight loss is not likely to be due to malabsorption.

E-Motility disorders

- The most common cause of chronic diarrhea is irritable bowel syndrome.

F- Chronic infections

- **Chronic parasitic infections include the protozoans giardia, Entamoeba histolytica, and cyclospora as well as the intestinal nematodes.**

G-Factitious diarrhea

- **Caused by laxative abuse.**

Clinical classification:

- **A classification of the more important causes of chronic diarrhea, based on practical clinical considerations**
- **In general, a focused clinical history provides an initial assessment and provisional segregation of patients with functional (common) and organic (relatively less common) disorders**

Clinical classification:

Functional disorders

- mainly irritable bowel syndrome

Organic causes

- inflammatory disease (mainly ulcerative colitis, Crohn disease, ischemia, tuberculosis)
- neoplasia (mainly colon carcinoma; often alternating with constipation)
- malassimilation syndrome (malabsorption and maldigestion)
- endocrine–hormonal causes (e. g., hyperthyroidism, carcinoid, islet cell tumor, diabetes)
- miscellaneous (e. g., parasitic infection, laxatives, lactose intolerance, AIDS)

Clinical classification:

History	Functional diarrhea	Organic diarrhea
Duration	years, often intermittent	usually weeks to months
Frequency	mainly morning and postprandial	day and night
Weight	stable	falling
Stool consistency	loose, watery; sometimes with mucous	bloody, mucopurulent or voluminous–fatty

Table 6.24 **Chronic gastrointestinal symptoms suggestive of a functional gastrointestinal disorder (FGID)**

Nausea alone
Vomiting alone
Belching
Chest pain unrelated to exercise
Postprandial fullness
Abdominal bloating
Abdominal discomfort/pain (right or left iliac fossa)
Passage of mucus per rectum
Frequent bowel actions with urgency first thing in morning

Evaluation of chronic diarrhea:

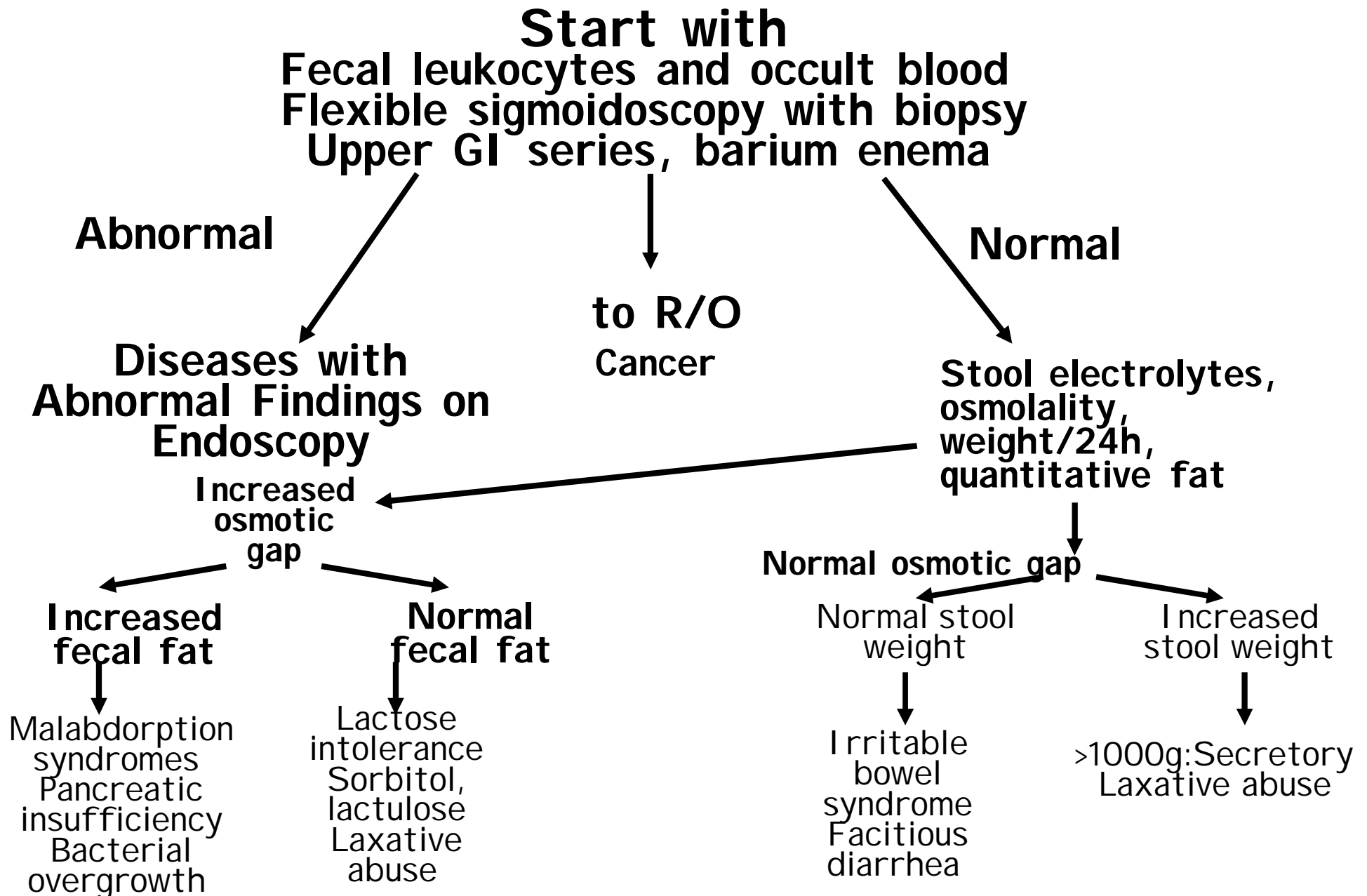
The history and physical examination commonly suggest the underlying pathophysiology that guides the subsequent diagnostic workup.

Chronic diarrhea

Exclude:

- 1-Causes of acute diarrhea**
- 2-Lactose intolerance**
- 3-Previous gastric surgery or ileal resection**
- 4-Parasitic infections**
- 5-Medications**
- 6-Systemic disease**

Chronic Diarrhea



Diseases with Abnormal Findings on Endoscopy

- 1-Ulcerative Colitis**
- 2- Crohn disease**
- 3- chronic infectious enterocolitis (Entamoeba histolytica, tuberculosis)**
- 4- ischemic colitis**
- 5- radiation colitis**
- 6- pseudomembranous colitis**
- 7- venereal proctitis (Neisseria gonorrhoeae, Chlamydia, herpes simplex virus),**

Chronic Diarrhea

A-Stool analysis

- 1-Twenty four hour stool collection for weight and quantitative fecal fat. A stool weight of more than 300 g/24 h confirms diarrhea. A weight greater than 1000-1500 g suggests a secretory process. A fecal fat determination in excess of 10 g/24 h indicates a malabsorptive disorder.**
- 2-Stool osmolality: A stool pH less than 5.6 is consistent with carbohydrate malabsorption.**
- 3-Stool laxative screen: In cases of suspected laxative abuse, stool magnesium, phosphate, and sulfate levels may be measured.**
- 4-Fecal leukocytes: The presence of fecal leukocytes implies inflammatory diarrhea.**
- 5-Stool for ova and parasites: The presence of giardia and E histolytica may be detected in wet mounts. A fecal ELISA for giardia-specific antigen is a more sensitive and specific.**

Chronic Diarrhea

B-Blood tests

- 1-Routine laboratory tests:** CBC, serum electrolytes, calcium, phosphorus, albumin, TSH. Anemia occurs in malabsorption syndromes (folate, iron deficiency, vitamin B₁₂). Hypoalbuminemia is present in malabsorption, protein-losing enteropathies, and inflammatory diseases.
- 2-Other laboratory tests:** In patients with suspected malabsorption, serologic testing for celiac sprue includes IgG and IgA antigliadin or tissue transglutaminase antibodies, serum VIP (VIPoma), calcitonin (medullary thyroid carcinoma), gastrin (Zollinger-Ellison syndrome). Urine should be sent for 5-HIAA (carcinoid), VMA, metanephrine (pheochromocytoma).

3-Endoscopic examination and mucosal biopsy: colonoscopy is helpful in the detection of inflammatory bowel disease. Upper endoscopy with small bowel biopsy is performed when a small intestinal malabsorptive disorder is suspected (celiac sprue, Whipple's disease). If bacterial overgrowth is suspected, the diagnosis is confirmed with noninvasive breath tests (^{14}C D-xylose, glucose, or lactulose) or by obtaining an aspirate of small intestinal contents for quantitative aerobic and anaerobic bacterial culture.

4-Other imaging studies: Calcification on a plain abdominal radiograph confirms a diagnosis of chronic pancreatitis as well as pancreatic cancer. Small intestinal barium radiography is helpful in the diagnosis of Crohn's disease, small bowel lymphoma, carcinoid, and jejunal diverticula.

Treatment

- **Loperamide: 4 mg initially, then 2 mg after each loose stool. Diphenoxylate with atropine: one tablet three or four times daily.**
- **Codeine and deionized tincture of opium. Because of potential habituation, these drugs are avoided in chronic, intractable diarrhea. Codeine may be given in a dosage of 15-60 mg every 4 hours.**
- **Clonidine: α_2 - Adrenergic agonists inhibit intestinal electrolyte secretion. Clonidine, 0.1-0.6 mg twice daily, or a clonidine patch, 0.1-0.2 mg/d, may help in some patients with secretory diarrheas, diabetic diarrhea, or cryptosporidiosis.**

- **Octreotide:** This somatostatin analog stimulates intestinal fluid secretion. It is given for secretory diarrheas due to neuroendocrine tumors (VIPomas, carcinoid). Effective doses range from 50 to 250 μg subcutaneously three times daily.
- **Cholestyramine:** may be useful in patients with bile salt-induced diarrhea secondary to intestinal resection or ileal disease. A dosage of 4g once to three times daily is recommended.

Thank You